Adiba Mahbub Proma

✉ aproma@cs.rochester.edu   G Google Scholar   🔗 Personal Website   in LinkedIn   ○ Github

Research Interest

Large Language Models, Human-Computer Interaction, Deep Learning, Computational Social Science, Network Analysis, Social Networks, Social Interactions, Climate Change, Policy Issues

Education

Ph.D. in Computer Science, University of Rochester   Jan 2023-Present
Field: Human-Computer Interaction, **Advisor:** Dr.Ehsan Hoque   *Rochester, NY, USA*
Thesis: Technological interventions for tackling harmful rigid beliefs in online platforms

M.Sc. in Computer Science, University of Rochester   Feb 2021-Dec 2022
Thesis: Technology for facilitating climate friendly behavior and aiding climate adaptation   *Rochester, NY, USA*

BSc in Computer Science and Engineering, BRAC University   Jan 2016-Dec 2019
*Highest Distinction Award (**GPA: 3.97**)*   *Dhaka, Bangladesh*

Technical Skills

- **Programming Languages:** Python, R, Java, ReactJS, Javascript, HTML, CSS
- **Frameworks:** LangChain, TensorFlow, Keras, PyTorch, OpenCV, SenticNet
- **Software:** Tableau, Empirica, MongoDB, Figma, Canva, Meteor Galaxy

Publications Under Review

- **A. Proma**, N. Pate, R. A. Baten, S. Chen, J. Druckman, G. Ghoshal, E. Hoque, **Exploring the Role of Randomization on Belief Rigidity in Online Social Networks** arXiv., 2024 [Preprint]
- S. Kelty, R. A. Baten, **A. M. Proma**, E. Hoque, J. Bollen, and G. Ghoshal, **Don't Follow the Leader: Independent Thinkers Create Scientific Innovation**, arXiv., 2023 [Preprint]

Journal Publications

- M. S. Islam, **A. Proma**, C. Wohn, K. Berger, S. Uong, V. Kumar, K. S. Korfmacher, E. Hoque, **SEER: Sustainable E-commerce with Environmental-impact Rating**, Cleaner Environmental Systems, 2023 [Journal Impact factor: 6.1] [Publication]

Conference Publications

- **A. Proma**, N. Pate, J. Druckman, G. Ghoshal, E. Hoque, **Personalizing LLM Responses to Combat Political Misinformation**, ACM UMAP, 2025 [Publication]

Workshops/Doctoral Consortium

- **A. Proma**, **Understanding the Rigidity of Beliefs in Temporal Social Networks**, 11th Int'l Conference on Affective Computing and Intelligent Interaction Workshops and Demos(ACIIW), 2023 [Publication]
- **A. Proma**, M. S. Islam, S. Ciko, R. A. Baten, E. Hoque, **NADBenchmarks – a compilation of Benchmark Datasets for Machine Learning Tasks related to Natural Disasters**. The Role of AI in Responding to Climate Change, AAAI Fall Symposium Series, 2022 [Publication]
- M. S. Islam, **A. Proma**, Y. Zhou, S. N. Akter, C. Wohn, E. Hoque, **KnowUREnvironment: An Automated Knowledge Graph for Climate Change and Environmental Issues**, The Role of AI in Responding to Climate Change, AAAI Fall Symposium Series, 2022 [Publication]

Invited Articles

- **A. Proma**, R. Wachter, E. Hoque. **The Untapped Potential of Computing and Cognition in Tackling Climate Change**, NAE Perspectives, 2023

Experience

Graduate Research Assistant, University of Rochester   **2021-Present**
Rochester Human-Computer Interaction Lab (ROCHCI Lab)   *Rochester, NY*

- **Using Large Language Models (LLMs) to tackle misinformation**
  * Built end-to-end pipeline of LLM-based personalized agent to convince people out of misinformed beliefs
  * Implemented ranking algorithms (including collaborative filtering methods and K-Means Clustering), retrieval augmented generation (RAG) models and prompt-engineering for summarization
- **Understanding Belief Rigidity in Temporal Social Networks [Preprint, Publication]**
  * Designed and developed a social media-like platform for case-control studies on the impact of peers on belief rigidity
  * Achieved 22% reduction in homophily using our designed recommendation algorithms
- **Natural Disaster Dataset Curation Platform for Machine Learning Tasks [Publication] [Website]**
  * Led end-to-end development of dataset curation platform for natural disaster datasets, classifying over 30 datasets based on ML task type, domain and dataset type
- **Redesigning Interface to Facilitate Eco-friendly Consumption in Online Platforms [Publication]**
  * Conducted a case-control study with 98 participants to explore how interface cues can promote eco-friendly products
  * Our custom-built platform boosted eco-friendly consumption and scored 79.18 on the System Usability Scale (SUS)
- **Automated knowledge graph for climate change [Publication]**
  * Contributed to building a knowledge graph for environmental issues, extracting 411,860 facts from scientific literature

Data Science Intern, Tech for Development Unit, BRAC SDP, BRAC Bangladesh   **Feb 2020-Jul 2020**
BRAC SDP is an initiative by BRAC NGO to boosts informal sector job placements   *Dhaka,Bangladesh*

- Implemented machine learning algorithms (XGBoost, Random Forest) to predict loan eligibility of borrowers
- Conducted statistical analysis and data visualization to analyze COVID-19's effect on income, aiding strategy decisions

Awards/Leadership

- Selected for a talk at **ACM NYCWiC**, 2025
- Selected for **Summer Institutes in Computational Social Science-Rochester**, 2024
- **Selected for CRA-WP Grad Cohort**, 2023 and 2022
- **Awarded Research Grant from ICT Ministry of Bangladesh**, 2018
- **Vice Chancellor's list and Dean's list**, BRAC University

Teaching Experience

Teaching Assistant, University of Rochester   **Sep 2021-Dec 2022**

- **Courses conducted:** Human Computer Interaction (CSC-212/412), Technology and Climate Change(CSC 460), Undergraduate Problem Seminar (CSC200H), Database Systems (CSC261)

Instructional Lecturer, BRAC University   **Jan 2020-Dec 2020**

- **Courses conducted:** Introduction to computing(CSE101), Data Structures(CSE220), Algorithms(CSE221), Microprocessors(CSE341), Compilers(CSE420)

Student Tutor, BRAC University   **May 2018-Aug 2019**

- **Courses conducted:** Programming Language I (CSE161- Basic Programming in Java), Data Structures (CSE220), Digital Logic Design (CSE260)

Services

- **Student Volunteer**, IEEE VIS Conference, 2024
- **Mentor**, Fatima Fellowship, 2024
- **Committee Member**, Ph.D. Admissions Committee, Department of Computer Science, University of Rochester, 2022
- **Reviewer**, ACL 2025, ICLR 2025, CHI 2025, WiML Workshop at NeurIPS 2024, ACII 2023, ACIIW 2023
- **Editorial Board Member**, BracuExpress (student-led campus newspaper), June 2017-August 2018

Mentorship

Graduate Research Mentees
(Published a paper together/writing a paper together is marked with *)
- **Neeley Pate***, PhD student in Computer Science, University of Rochester
- **Anik De**, MS student in Data Science, University of Rochester
- **Danni Shi**, MS student in Computer Science, University of Rochester (*currently an Application System Engineer at Samsung Austin Semiconductor*)

Undergraduate Research Mentees
(Published a paper together/writing a paper together is marked with *)
- **Sifeng (Chris) Chen***, Computer Science, University of Rochester
- **Jiamu Tang**, Data Science and Philosophy, University of Rochester
- **Juan Lucena**, Computer Science, University of Rochester
- **Nour Assili**, Data Science, University of Rochester
- **Seif Mohammed**, Computer Science, University of Rochester
- **Stela Ciko***, Computer Science and Business, University of Rochester
- **Yilin Zhou***, Data Science, University of Rochester
- **Roka Hosono**, Computer Science, University of Rochester *(currently MS student in Northeastern University)*
- **Varun Kumar***, Computer Science and Finance, University of Rochester
- **Yufei Li**, Computer Science, University of Rochester

Additional Activities

Testing Assistant,Office of Disability Resources, University of Rochester   **Sept 2022 - Present**
- Collaborated with administrative staff to ensure students' accessibility needs are met during testing
- Proctored tests for students with accessibility needs

Feature Writer, The Daily Star   **Jan 2016-Apr 2020**
The Daily Star is one of the leading English newspapers of Bangladesh
- Researched local and international trends; and collaborated with writers for the weekly sections Lifestyle and Next Step
- Wrote over 100 *articles* related to social issues, career development, and musings for print and online platform

Editorial Board Member and Feature Editor, BracuExpress   **June 2017-August 2018**
BracuExpress is BRAC University's student-run campus newspaper   *Dhaka,Bangladesh*
- Was part of a 5 people board member to make all administrative decisions related to the campus newspaper
- The role included meeting faculty members to make long-term goals, deciding on content, assigning and training writers, and editing their work

Author, The Mason Jar
- Published two short stories as part of a fiction book published by Worthy Publications